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SECOND SERIES VOL. IX, No. 12

BULLETIN

OF

THE NEW YORK ACADEMY OF MEDICINE

INCORPORATED 1851

DECEMBER, 1933

INCLUDING INDEX FOR THE YEAR

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PUBLISHED MONTHLY BY

THE NEW YORK ACADEMY OF MEDICINE

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New York, N. Y.

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VOL. IX DECEMBER, 1933 No. 12

THE PHYSICIAN'S PROFESSION THROUGH THE AGES*

HENRY E. SIGERIST
Johns Hopkins University

The characteristic features of the medical profession are determined to a very large extent by the attitude of society towards the human body, and by the valuation of health and disease. The scope of medicine was always the same; to cure disease and eventually to prevent it. Medicine always meant service; therefore, at all times certain qualities were required of the physician—readiness to help, knowledge concerning the nature of disease and skill in curing the sick man. However, the medical ideal was a very different one in different periods of history, determined by the structure of the society of the time, and by its general conception of the world.

Primitive medicine had a very complex character. While light ailments needed no particular explanation, and were treated by the patient or his relatives by drugs, special diets and other rational means, serious ailments had to be explained, and the explanation was magical or religious. It was believed that somebody had done harm to the patient, and this somebody might be another man or a

* Delivered before The New York Academy of Medicine, October 18, 1933.

demon, causing the harm by introducing an object into the body of the patient by means of magic, or by removing something essential to life. In other cases it was believed that the deity had sent disease as a punishment for sin, or that a demon had taken possession of the patient's body. According to these views the therapy was either magical or religious, for an object had to be taken out, the removed part of the body had to be brought back, the deity placated, and the demon expelled. The physician of primitive society was therefore physician, priest, and magician at one time. He is called medicine-man, according to the designation given him by the North American Indians; or shaman, as he was called in the Siberian tribes. His life was a hard one. He was paid according to the success of his treatment. If the patient died, he might be suspected of having caused the harm himself. Being skillful in the art of magic, it was believed that he was able not only to remove a spell, but to do harm as well by means of magic. In many tribes, shamanism was hereditary, in others one was born to be a shaman. Particular events at the time of birth—a child being born with a tooth; or events in early childhood—a child having survived an accident which otherwise would have been fatal—seemed to designate a child as a prospective shaman. The young one was trained by another shaman until he was consecrated and became independent. In some African tribes the medicine-man was a farmer like the other members of the tribe, and practiced his art only occasionally, while in most other tribes the shaman lived a segregated life, apart from the other members of the tribe.

In Babylonia the physicians were priests. The Babylonian civilization had an entirely religious character, and all sciences were a part of theology. Their purpose was to keep the gods benevolent, or to placate them if they were offended. In order to know the intentions of the gods, one had to observe and interpret the omens, the signs through which the gods revealed their intentions. All Babylonian sciences started this way, and so did medicine.

The priest-physician watched the stars, a flickering flame, a drop of oil poured into water, the organs of sacrificed animals, in order to know what the fate of the patient would be, and to be able to counteract it. Omens, however, were not only the phenomena just mentioned, but the symptoms of disease as well. These, too, had to be observed carefully and given a meaning. They were described and studied with great care, and in this way rational possibilities were given to medicine without leaving disregarded the religious attitude. The treatment consisted chiefly of incantations, and a great many texts give a very graphic description of the priest-physician dressed in the red cloak, a raven in one hand, a falcon in the other, pronouncing the incantation over the patient.

At all times the physician's profession gives him power. He knows poisons—chemical, physical, biological forces of high potency are given freely into his hands. Secrets are divulged to him, which also gives him power over the patient. A misuse of this power is a serious menace to society, and so at all times society endeavoured to protect itself by establishing rules regulating the physician's behavior. The first regulations of this kind are found in the Code of Hammurabi (2000 B. C.) where a tariff is established. The surgeon's fee varied according to the social standing of his patients. Moreover, the surgeon was declared liable for his doings, and in case of a fatality in an operation his right hand was cut off. We find similar regulations in ancient Persia, in one book of the Avesta—the Videvdat—which contains extremely interesting regulations according to which a surgeon was not allowed to practice before he could show three successful operations performed—not on Parsees, but on infidels.

In Egypt, the physicians belonged to the class of the scribes. They, too, were sometimes priests, but not exclusively, as was the case in Babylonia. They received their medical training in the schools connected with the courts, the chancelleries, or the temples, the most famous of which were in On, Memphis, Thebes, and Sais.

When the Greeks began to travel to Egypt, they recognized in the Egyptian god of healing, Imhotep, their own Asclepios. Yet these were two entirely different deities—Imhotep, originally a man, a great scholar and architect, who lived in the time of King Doser, and who afterwards was heroized—Asclepios, on the other hand, a local demon in Thessaly, a chthonic deity. According to legend, Asclepios was cut out of his mother's womb by Apollo, whose arrows had killed her. The child Asclepios was brought to the cave of the centaur Cheiron, who taught him the medicinal virtues of herbs, and many incantations. In this way, Asclepios became a physician who cured many sick men; and he even resuscitated some who were already dead. Zeus struck him with his thunderbolt for such presumption.

This legend has a deep meaning. It means that the physician's interfering with the laws of nature is not obvious, but represents an enormous hybris. And Plato still felt the necessity of justifying the physician through the argument that the state needs healthy citizens. Asclepios was worshipped in many temples, and it was believed that his priests, the Asclepiads, were the first doctors of Greece. This, however, is not correct. The medical practice in these temples consisted in miracle cures. It was a purely religious medicine, that has nothing at all to do with the healing art that originated in the schools of the pre-Socratic philosophers, and found its highest expression in the school of Hippocrates. The Hippocratic physicians called themselves Asclepiads, also. They did so because they were organized in a kind of guild, the patron of which was Asclepios.

The Greek physician, however, was a craftsman. He received his training by going to another doctor as an apprentice. Like the other craftsmen, he travelled a good deal, and practiced his art while wandering. There were not many doctors in Ancient Greece; only the larger cities had their own doctor, whose salary was raised by a special tax, and who was in the city service. In times of war or

epidemics, special physicians were appointed, but all the smaller places had no doctor, and the medical service was given exclusively by wandering physicians who happened to come to such a place.

We do not like the idea of a Greek physician being a craftsman; going from one city to another, knocking at the doors and offering his services as a shoemaker or a blacksmith would. And yet there is no doubt that that was the case. Several Hippocratic treatises give us very enlightening accounts of such occurrences. There was very little privacy in the relations between doctor and patient. The doctor's shop, the *iatreion,* like other craftsmen's shops, was open to everybody, and medical questions were discussed publicly in the market place. When it happened that two doctors came to the same town at the same time, a wild competition was the result of such a coincidence. Again, the Hippocratic writings tell us how many doctors tried to attract the patients' attention by dressing extravagantly, being profusely perfumed, and by displaying showy instruments. Dr. Ludwig Edelstein has demonstrated very convincingly that the art of prognostic developed in Greek medicine to such an extent, chiefly on account of these peculiar conditions in medical practice. The doctor who came to a small city generally was unknown to the population. The best way to secure a good reputation was by making correct prognoses and by telling the patient right away what his disease was without even asking questions.

Being a craftsman who worked for his living, the social position of the Hippocratic physician was not a high one. And yet of all craftsmen he undoubtedly was one of the most highly esteemed, and this was on account of the attitude of the Greeks towards the human body.

The Greek world was a world of the healthy and sound. Health appeared to be the highest good. The ideal man, to the Greeks, was the harmonious being whose balance in soul and body is noble, beautiful, and perfect. Disease was

considered a great curse because it removes man from the condition of perfection and makes him inferior. The physician, therefore, whose duty it is to maintain and restore health, was as highly esteemed as a craftsman would be.

In the Homeric writings, already we find that often-quoted verse, that a doctor is a man who is as valuable as many other men combined.

In Rome the first physicians were slaves whose medical knowledge was very primitive. From the 4th century B. C. on, Greek physicians began to immigrate. They were adventurers, mostly, and were strongly opposed by the Romans. Their superior knowledge, however, was soon recognized, and frequent wars necessitating a great many army surgeons had the result that the policy towards the foreign physicians was entirely changed, and that they were attracted to Rome as much as possible. In 46 B. C., Julius Caesar presented all free-born Greek physicians on Roman soil with the right of Roman citizenship, a great present indeed. Augustus knighted his body-physician, Musa. The privileges accorded to physicians became still greater. The doctors were free of taxation, free of military service, and free of the duty of taking lodgers and of accepting offices. But now the great question arose: who is a physician in antiquity? There was no state control of any kind, no university which could deliver a recognized degree. The greater the privileges, the more tempting it became to call oneself a physician, in order to obtain them. So a certain amount of restriction became necessary, and in the time of Antoninus Pius a *numerus clausus* was introduced, according to which in all Roman cities only five, seven, or ten doctors, according to the size of the city, should be so privileged. These were called the "valde docti", and in order to attain to that rank they had to prove that they possessed medical knowledge. In this way a kind of license was instituted, which guarded the rights of competent physicians.

In Roman times, many families had their family physician. They gave him an annual salary for which he treated

the whole family during that year. A body-physician at court got a salary of about $12,000. But we hear of physicians in the capital whose annual income amounted to about $35,000. And there were physicians and surgeons who charged as much as from $2- to $10,000 for their special cures or operations. This of course was exceptional.

Through inscriptions we know that there were medical societies in the Roman Empire. Their chief purpose was the common cult of their patrons Aesculapius and Hygeia. Some of these societies, however, endeavoured to improve the physicians' knowledge and to stimulate their zeal. The medical society of Ephesus had annual prizes for the most brilliant cure effected by one of their members during the year, or for the invention of the best surgical instrument.

The position of the sick man and the physician in society was radically changed by Christianity, which came into the world as the religion of healing. The new teaching appealed to the sick, the weak, and the crippled, in sharp comparison with the old religions, which were essentially for the sound and pure. It promised healing both spiritually and physically. Did not Christ himself work cures? While in the Semitic world disease was considered a punishment for sin, while among the Greeks it produced inferiority, in the Christian world disease meant purification, disease therefore became grace. The sick man is a person who has obtained a share in the grace of God. Taking him in is the duty of the Christian, and benefits the soul of him who does the good deed. Hospitals were erected, and from the 6th century on, the convents and monasteries made the sick their especial care. But the care of the sick is not medicine. Christ had cured without drugs. There was hardly any room for the physician in early Christian society, and Greek medicine was considered pagan art. Christian pupils of Galen were excommunicated, because they devoted their time to this heathen science. Over and over again one endeavours to justify the physician by quoting the words of Ecclesiastes, according to which the physician had to be honored because he was a necessity, and because

he, too, was a creature of God. Recognizing that the sick people could be taken care of much more efficiently, not only by nursing them but by giving them medical treatment, the church reconciled itself with ancient medicine. Cassiodorus, the great chancellor of Theodoric, in the 6th century, had medical books in his library, and the Benedictines, following his example, began studying medicine also.

In the early Middle Ages most of the physicians were monks. Monasteries had special rooms devoted to the care of the sick, and the cloisters became centers of medical study. There in the cloisters medical books were copied, were compiled, and it was not always done uncritically. A monk in the monastery of St. Gall, copying the herbal of Pseudo-Apuleius, left out all the plants that did not grow in his country, and replaced them by describing native herbs. The medical literature of the early Middle Ages, however, was not original. It was chiefly compiled from ancient sources, but in this way, Greek medicine, and the principles of Greek therapy were observed.

As these mediaeval physicians belonged to the clergy, their ethical standards were directed by the church, and continued to be so directed in the later Middle Ages as well, when a great many laymen had joined the medical profession, because doctors and patients, whether clerical or lay, were first of all Christians. The church declared it the patient's duty to consult a physician. The sick man who avoided treatment harmed himself. To harm oneself is sin, just as suicide is sin. Medical service is to preserve life, just as eating and drinking does, and it is the duty of a Christian to do whatever he can to preserve the abode of the soul. A Christian patient could not call in an Arabic or Jewish physician. If he did so he was apt to be excommunicated. The superiority of the Arabic and Jewish physicians, however, was so evident that it was impossible to enforce this rule. On the other hand, it is the doctor's duty to treat all the patients, even hopeless cases. In sharp contrast to this were the ancient Oriental and Greek

conceptions, where the doctor considered it unethical to attend a case in which his help would be of no use. It was further declared to be the doctor's duty to give free medical treatment to poor patients, and in some cases even to provide them with drugs gratuitously. The doctor was made liable for his doings, and it was his duty to follow the traditions.

The church, however, did not approve of its ministers occupying themselves with medicine. After all, medicine was a worldly art. Surgery was considered particularly unsuitable for the priests, because any operation might be fatal, and the priests were not allowed to undertake anything that could lead to death. From 1131 on, edicts were passed restricting the clerics from medical work. The fourth Lateran council in 1215 forbade the priest taking part in any surgical procedures. The surgeons, therefore, were more and more frequently laymen.

In the 10th century a medical school began to develop in Salerno. It flourished in the 12th century under the inspiration of the new translations of medical books that were made from Arabic into Latin. The Salernitan school was not founded by the church. The doctors were laymen as well as clerics. The chief importance of the Salernitan school lies in the fact that it created a new literature which, although it was not original in itself, following ancient and Arabic sources, still improved considerably the medical knowledge of the time. In 1224 the Emperor Frederic II published decrees regulating the medical conditions of his empire—decrees which are particularly interesting, as it is the first time in European history that medical practice was strictly regulated by public law. The right to practice medicine was made dependent upon the ability to pass certain requirements. The medical curriculum comprehended three years' study of philosophy, five of medicine, and one of practice. The candidate had to pass an examination in Salerno, after which a license was delivered to him.

Salerno was the first medical faculty of the occidental world. It was followed by the institution of universities all over Europe. The 12th and 13th centuries brought a great many new translations of medical books from Arabic into Latin, and it became the chief task of the universities to interpret and assimilate the new literature. The method was the Aristotelian dialectic, and the result was scholasticism in the West as it was in the East. Medical education was purely theoretical.

It would be a mistake to assume that medical practice was chiefly magical in the Middle Ages. There was a religious medicine, to be sure, as there always was and still is. And it is obvious that in a period in which all sciences were dominated by theology, the religious element in medicine was stronger than at other times. The principles of medical practice, however, still were the principles of Greek medical science as is clearly shown by the medical text-books and by the Consilia in which the physicians discuss definite cases.

In the 13th century we encounter a very highly developed surgery, the roots of which are hard to trace. The reason for this is that at this time the surgeons in Italy were educated at the universities, and wrote text-books, while before, and outside of Italy, the surgeons were uneducated craftsmen who did not write. Surgical operations had always been performed, but we do not hear of them. Surgery has a different tradition from that of medicine. It is to a very large extent independent of any literature, and is transmitted by word of mouth from father to son, and from master to pupil. In most countries of Europe, the surgeons, like other craftsmen, were organized in guilds. They were barbers, were bath-keepers in the German countries, their field was limited to the treatment of wounds, to the lower surgery. In the beginning of the 13th century, the Collège de St. Côme et St. Damien was founded in Paris. Its members were divided into two categories—the surgeons of the long robe, among whom there were still clerics, and those of the short robe. There

were endless conflicts between the surgeons themselves, and between surgeons and physicians.

From the founding of the universities on, the physician was a scholar, a doctor, and has been so ever since. In the Christian Middle Ages, professions were considered vocations, divine missions from which definite duties towards God and one's fellowmen were derived. The rise of capitalism brought in a different conception. Economic aspects were stressed. A profession became more and more a means to earn a living. To the honor of the medical profession, it must be said that the old mediaeval conception of the profession has been preserved to our day, more than with most other professions. I have never heard of an engineer building a bridge without remuneration. And yet, from the 16th century on, the economic aspects were more and more influential in the development of the profession.

The physicians recruited themselves from the middle classes. The best that could happen to them was to be body-physician to a person of high rank. This gave them a definite income, and thus the opportunity of devoting much of their time to charity work. The monarch had a whole staff of body-physicians and surgeons, and the aristocracy, whether worldly or ecclesiastical, followed the monarch's example. In the more democratic countries, like, for instance, Switzerland, a doctor was attached, not to the court of a nobleman, but to a family, or a group of families. The family physician is the democratic form of the body-physician.

The rise of democracy at the end of the 18th and in the 19th centuries abolished the class privileges, the profession was open to everybody. Individualism and liberalism became evident. Health and disease were considered a private matter of the individual, so far, that in Germany in 1869, at the instigation of the Berlin Medical Society, medical practice was opened to everybody, even to those who had never studied medicine. This is a typical example of 19th century liberalism. The law was justified by the

arguments that there always had been quacks, and there always would be, that man had a natural right to choose his healer, and that the people, being reasonable, would know how to distinguish a real doctor from a fake one. Rudolf Virchow was responsible for this development to a very large extent.

Democracy, undoubtedly, was a great advance. It gave everybody a chance. And as the great Christian humanitarian ideals were fully alive, a successful man felt his obligation to help those who had not been successful in life. A great deal of charity work was done, more hospitals were erected than ever before.

In the 19th century the doctor was a member of a highly respected liberal profession. An academic education was highly regarded, and rewarded its owners with great social privileges. The natural sciences had developed by leaps and bounds, and the doctor being a representative of the natural sciences, was so much the more esteemed. Although very few physicians ever became wealthy, the majority of them had a decent income that made it possible for them to give free medical care to the poor. For a considerable time, the hospitals were exclusively charity institutions, and it was quite obvious that in most cases the doctor did his hospital work without any remuneration. I still remember the time when in Europe, the doctor did not send bills, and received from the different families certain amounts of money for Christmas.

These times have gone. The world has changed, and the medical profession today is undergoing one of the greatest revolutions in history. It is a revolution, not of medicine, but of medical service. During the 19th century, the profession was absorbed by research problems. Medicine has made more progress, and has become more efficient than ever before in history. While all efforts were tending towards advancing our knowledge of the disease mechanisms, comparatively little was done to organize medical care. And as a matter of fact, little had to be done, as medical service kept on being efficient by following traditional lines.

The situation is entirely changed today. And it is so changed for different reasons. Medicine has become more and more technical, and more and more specialized. During the 18th century the faculties of the medical schools began to devote more and more of their activities to medical research. In the 19th century, the research methods became greatly complicated, and the consequence was that the research worker necessarily had to specialize. The result of this specialization in research was that teaching, too, became more and more specialized, as most of the European universities had the principle that a medical subject should not be taught except by men who had done active research work on it. In 1833 Johannes Müller was appointed in Berlin as Professor of Anatomy, Physiology, and Pathology. After his death, the chair had to be split up into three chairs. The next step, finally, was the specialization of medical practice, which is still increasing.

Specialization in medicine is not a new phenomenon. When Herodotus travelled in Egypt in the 5th century B. C., he found specialists everywhere—doctors for all organs and for all diseases. The same occurred in the Roman empire. While Hippocratic physicians were general practitioners, in the last centuries of the Roman empire there were specialists everywhere in Rome. This means that in all civilizations a point was reached in which medical knowledge seemed so vast that it could not be mastered by one single man, and specialization followed of a necessity. Through specialization, medicine today has become more efficient than ever before. And yet it certainly has its disadvantages. The physician, who, his whole life long deals with a limited group of diseases, becomes necessarily one-sided. The patient, on the other hand, who, in the beginning of specialization used to consult a family physician first and was eventually sent to a specialist through him, today makes the diagnosis of the affected organs himself, and it is he who decides to which specialist he shall go. A very promising attempt to find a

way out of this situation is the development of group medicine, where doctors of different specialties join to form a clinic.

What made medical progress possible was the gigantic development of the natural sciences. There was extraordinary development at the same time, in another field—in technology, and the result of this was the industrialization of the modern world. The same elementary force that made medical progress possible, had changed the aspect of the world so profoundly that the doctor has difficulty in finding his place in this new world which is ruled by iron economic necessity. The number of doctors grew, and a ruthless competition arose. While the doctor of yesterday did not need to bother about his bills, today he has to merchandise his services. He has to find out what the cash value is of each service he performs, just as a grocer has to do. The more efficient medicine became, the more complicated and the more expensive it was, and the more difficult it was for the doctor to give free medical care. Today, therefore, we are in the very serious situation that we run the risk of seeing a great effort wrecked by maladjustment.

Long ago an attempt to deal with this situation was made in Europe by the introduction of social insurance. Sickness insurance was introduced, first in Germany; not by the socialists, but by Bismarck and the conservatives, which is very often overlooked. Sickness insurance for the community is the cheapest way to take care of the poor patients, because it makes them take care of themselves, by saving part of their wages in case of sickness. There can be no doubt that the sickness insurance in the different European countries has had very remarkable results for the people's health. Germany, soon after a lost war, famine, revolution, had health conditions that were just as good as those existing in the victorious countries. And the compulsory sickness insurance is surely to be made responsible for this, to a very large extent. And yet it is beyond question that the different insurance systems, as they are

working in Europe today, had very serious drawbacks. A new type of medical service was created, but one endeavoured to preserve the old forms as much as possible. The doctor, in most cases, still was paid according to his individual services, and as the insurance companies had not unlimited means, the fees sometimes were very inadequate. On the other hand, abuses on the part of the patient as well as the physician, occurred, so that both patients and doctors had to be controlled. The result was a huge administrative machinery with endless red tape.

The next step in the development was the one undertaken by Russia, where the whole working population is insured against sickness, and where the same position is given to the doctor as the other professions, the priest, the judge, the teacher already have in other countries.

We medical men have a strong *esprit de corps*. We have a glorious history, and we are justified in being proud of it. What unites us is that, unlike other professions, all of us, whether we work at the bedside, in the laboratories, or at the writing desk, have but one purpose, to benefit the sick man. We have developed strong professional organizations, from the very beginnings of our history. The Greek doctors had their guilds, their codes, and their ethics, as did the mediaeval surgeons. The mediaeval physicians were members of their faculties, which were very powerful organizations. From the 16th century on, medical societies developed, which today all over the world are very influential bodies. All this necessarily makes us very conservative, but we must have the courage to face the present-day situation, openly. We must not be afraid of words, which so often are incorrect, and the meaning of which is not seldom obscure to those who use them. We have a very absorbing profession—from the first day we enter medical school, we have to work hard, and this leaves us little time to see or to watch what is going on around us. And in this way it might happen that many of us have not quite realized how fast the world is changing its aspect. There is a strong trend away from individualism. Health

and disease are no longer considered a private matter of the individual. In many countries, laws have been made to enforce health. Society, more and more, feels responsible for the welfare of all its members. It has placed the means of retaining or regaining health within the reach of everyone, and in return, it may well demand health of the individual. We may like this development, or we may dislike it, but we cannot help it. All of us are dependent on each other. If large parts of the population suffer, it is quite obvious that the rest will be affected by it. To us medical men, the idea that one sick organ affects the whole organism should be familiar.

There is one lesson that can be derived from history. It is this: that the physician's position in society is never determined by the physician himself, but by the society he is serving. We can oppose the development, we can retard it, but we will be unable to stop it.

The history of the medical profession today has reached a crucial point, and it is our duty to save the efficiency of a noble profession, that not only has a great past, but a still greater future. I would like to close by repeating what I have written once before; never before has society presented the physician with so wide a field of activity and with so much influential power. If never before, certainly today the doctor may become a statesman, the Asklepios Politikos visualized by Plato.

ANNUAL GRADUATE FORTNIGHT
"DISORDERS OF METABOLISM"
October 23 to November 3, 1933

INTRODUCTORY ADDRESS TO THE SIXTH ANNUAL GRADUATE FORTNIGHT OF THE NEW YORK ACADEMY OF MEDICINE*

BERNARD SACHS
President, The New York Academy of Medicine

LADIES AND GENTLEMEN:

First of all, let me welcome all of you to this Sixth Annual Graduate Fortnight of The New York Academy of Medicine.

The Fellows and Officers of the Academy have been especially proud of the success they have had in providing this very unusual opportunity for the active practitioner in medicine and surgery to become acquainted with some of the important problems of the day in medical science and thus to be kept thoroughly abreast of the most recent advances.

In former years, we have discussed the "Problems of Aging and of Old Age," "Disorders of the Circulation," and "Functional and Nervous Problems in Medicine and Surgery." Last year, we discussed "Tumors" and, this year, we will have the opportunity to hear the "Disorders of Metabolism" discussed by men who are thoroughly acquainted with the subject in its various aspects.

If this present Fortnight proves to be as successful as its predecessors, and I believe it will, we owe especial thanks to the excellent Graduate Fortnight Committee, of which Dr. Howard F. Shattuck is Chairman, which has done its very best to make this Fortnight a thoroughly satisfactory performance. And, when I use the word per-

* Delivered October 23, 1933.

formance, I mean to include the very striking exhibit which has been prepared with the utmost care, under the unusual devotion of Dr. Harrison S. Martland. On behalf of the Graduate Fortnight Committee, I desire to acknowledge the splendid cooperation that we have received, not only from so many men of distinction in this and other cities, but also from the hospitals, clinics and other scientific institutions of New York.

As a matter of record, let me remind you, that in addition to the evening lectures there will be afternoon clinics and demonstrations in fifteen different institutions.

This Graduate Fortnight helps us to achieve another aim which I stressed in my inaugural address last January. I made a plea at that time for active cooperation between the various sections of the Academy and the various specialties in medical and surgical practice. That plea was, at the same time, a warning against extreme specialization, and it was intended to point out the need, as I would now say, of a recentralization of medicine. I feel more strongly than ever, and I say this as a man who has been engaged in special practice for very nearly half a century, that specialization in medicine cannot be entirely successful or even useful unless it maintains the closest possible relation with all other fields of practice and of medical research.

I find, therefore, some personal gratification in analyzing the program spread before us. There is scarcely a branch of medicine or surgery that is not deeply involved in this question of Metabolic Disorders.

Internal medicine, pediatrics, neurology, psychiatry, dental diseases, constitutional disorders, and even hereditary affections are to be discussed under the general heading and in connection with disordered metabolism.

In this connection it is of interest to note that one disease in which I have had a unique interest, having first recognized it some forty-five years ago, has of late years, strangely enough, fallen into this group of possible meta-

bolic disorders. It may be known to some of you, I dare say not to many of you, that Amaurotic Family Idiocy has been brought into very close relationship with the Niemann-Pick Disease—a disease characterized by a most unusual abnormality in fat metabolism, a disease afflicting children from the age of five or six months on, occurring chiefly in Jewish families, and proving fatal in the vast majority of cases within a period of two to two and a half years.

That a disorder in fat metabolism should be the most characteristic feature of a family affection is an occurrence difficult to explain. If I do nothing else in this discussion, and I hope I am not doing any harm thereby, I would like to put the question: Is this peculiarity of fat metabolism the primary factor in this family affection, or is there some other, possibly endocrine disorder or abnormality which we must hold responsible for this change in metabolism?

Personally, I hope to gain some information on this in the course of the various discussions that are to be held.

Let me bespeak for the entire program as prepared for you, your active interest, and will you also be lenient in your judgment of any errors or omissions that we may be guilty of in this Fortnight. Our intentions are good; the Lord is responsible for the rest.

DIRECTOR AD INTERIM

Because of the protracted illness of the Director, Dr. Linsly R. Williams, the Trustees and Council of the Academy at their meeting on December 13, 1933, appointed Dr. John A. Hartwell as Director ad interim.

FOSTER KENNEDY, *Secretary.*

TOTAL ENERGY EXCHANGE IN RELATION TO CLINICAL MEDICINE*

EUGENE F. DUBOIS
New York

The majority of clinicians look upon the total metabolism or the total energy exchange as a matter of importance only in the adjustment of diets in diabetes or obesity. They realize also that it is necessary to consider the total metabolism in certain other diseases and particularly in the feeding of children. Dieticians study the total metabolism in arranging the diets for large institutions and even for whole populations in time of war. Such caloric requirements are well known and one can easily find them in the textbooks. I would like to call your attention this evening to the forgotten calories and their effects on the patient.

We have perhaps concentrated too much on the basal metabolism and have neglected the total. The basal metabolism is important in diagnosis but we must remember that basal conditions are found during only a small fraction of the day, usually only four or five hours out of the total twenty-four. Everyone knows how difficult it is with untrained patients to secure a really satisfactory basal metabolism test. Some patients instead of coming to the laboratory in the true post-absorptive condition, that is 12-14 hours after the last meal, steal a little breakfast which raises the metabolism 2 to 5 per cent. Others are made tired by the journey and do not rest long enough to get over the effects of their previous exercise. Others move during the test. Many patients are apprehensive or uncomfortable and this may give readings 10 or even 30 per cent above the basal. Now if these factors which raise metabolism are frequently present when we have taken precautions to avoid them you can easily imagine how they affect our patients in their ordinary daily lives. In the

*Delivered October 23, 1933.

daylight hours when the patient is lying quietly in bed, conditions approximate the basal but there are many interruptions.

A factor of minor importance for most patients is the stimulating effect of food, the so-called specific dynamic action. After a heavy meal of protein or carbohydrate the metabolism may rise 20 to 30 per cent for a few hours but if we calculate this increase for the 24 hours it does not amount to more than about 6 per cent of the total calories consumed. Richardson and Mason[1] were able to reduce the stimulating effect of food to as low as 2.6 per cent by giving small meals at frequent intervals thus supplying to the body the food-stuffs at just the rate at which they were being metabolized.

The effect of fear and excitement on the total metabolism has not been adequately studied but these can probably cause increases of 10 to 20 per cent as we all realize when we try to determine the basal metabolism of a nervous patient who is afraid of the test.

Of course the most important factor in the total metabolism is muscular exercise. Out of the great mass of the literature I shall select a few examples from the work of F. G. Benedict[2]. In the case of a trained subject the metabolism lying down was 67 calories an hour, standing at ease 75 calories, while walking at the moderate rate of 3 miles an hour 220 calories. Running at the rate of 5 miles an hour it was 600 calories an hour or ten times the basal.

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[1]Richardson, H. B. and Mason, E. H. Clinical Calorimetry No. 33. The effect of fasting in diabetes as compared with a diet designed to replace the foodstuffs oxidized during a fast. *Jour. Biol. Chem.* 1923, 57, 587.

[2]Benedict, F. G. and Murschauser, H. Energy transformations during horizontal walking, Carnegie Inst. of Washington, Pub. No. 231, 1915, Washington, D. C.

Benedict[3] studied a group of women in a large respiration chamber and determined the increase found in ordinary occupations. When they were standing their metabolism was 9 per cent above the basal, simple sewing increased heat production 13 per cent, dusting 134 per cent, sweeping 150 per cent. He found that when a woman climbed an average flight of stairs she expended two calories. For the same expenditure of energy she could walk down three flights of stairs or could walk about 45 yards on the level.

A consideration of the effects of exercise brings out the fact that the term total energy exchange or the total metabolism may be applied either to a given instant or to the whole day. A woman who climbs 15 steps in 15 seconds expending 2 extra calories in this short space of time has a large percentage increase in her metabolism but these two calories play but a small part in the total metabolism of the 24 hours. From the clinical standpoint therefore we must consider the basal metabolism as a plateau of expenditure on which are superimposed wave-like increases from the specific dynamic action of food and sharp peaks from muscular exercise. Fortunately the body does not have to pay its caloric debts for severe muscular exercise immediately, but distributes the load over a period of recovery.

From a nutritional standpoint the caloric needs are met by the combustion of protein, fat and carbohydrate. The protein metabolism is not affected by muscular exercise but depends on the amount of protein in the food or if the protein intake be restricted it depends on a certain inherent body level of protein destruction which in health is rather low, in certain toxic diseases distinctly high. The non-protein calories may be derived either from fat or carbohydrate depending on the food or on the reserve stores of carbohydrate in the body. When the body is in approximate nutritive balance the food-stuffs that are oxidized are about the same as those that are given in the food. If

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[3]Benedict, F. G., and Parmenter, H. S. The energy metabolism of women while ascending or descending stairs. *Amer. Jour. Physiol.* 1928, 84, 675.

however an excess of food is given fat is stored. If an insufficient ration is provided the body is forced to use its own stores. Since most patients with acute diseases are on low diets they are metabolizing mixtures of protein, fat and carbohydrate which are very different from those given in the food.

The total metabolism marches on day after day almost regardless of our ability to provide food. Nature however does make some attempt to adjust the expenditure and with prolonged undernutrition there is a gradual fall in the basal metabolism, perhaps as much as 20 to 40 per cent. At the same time there is a tendency for the undernourished subject to limit his muscular work. On the other hand a subject who is receiving much more food than he oxidizes is gaining in size, he is almost constantly under the influence of the stimulating effect of food and his resting metabolism tends to rise but not more than a few per cent so that he does not succeed in burning up the excess.

As clinicians we are mainly interested in the effect of disease on the basal metabolism and more particularly on the total metabolism, not only the total metabolism for the day but also for those peaks which throw the greatest strain on the patient. Everyone is familiar with the increased basal metabolism of exophthalmic goiter, of fever, of leukemia and of patients who are suffering from dyspnea. Apart from the basal the total metabolism is raised in all patients who are restless or apprehensive. We know that in exophthalmic goiter and perhaps in other diseases there is an increased cost of work so that a given muscular task which would require only one calory from a normal person would require several calories from the patient.

The clinician is confronted with patients whose metabolism cannot be reduced below the basal. A patient who is seriously ill finds difficulty in meeting the demands even at this basal level. There is little or no reserve and he may

give evidence of the fact that he is actually in debt, showing the classical symptoms of cardiac failure. The question then arises as to how we can best adjust the total metabolism so that it exceeds the basal by the smallest possible margin. Clinicians have fully realized that rest is the most important factor in treating patients who are seriously ill but I do not believe that they have always analyzed the physiological basis of their therapy.

They do not realize that there are many other physiological processes which more or less closely parallel the total metabolism. The total heat production is directly proportional to the oxygen consumption of the body cells and since the cells must be supplied by the blood an increase in metabolism is accompanied by an increased velocity of blood flow, an increased pulse rate and increased cardiac out-put. Inasmuch as the work of the heart is augmented there is a rise in the coronary circulation and also in the circulation in the lungs. Along with the heightened oxygen consumption there is an increased production of carbon dioxide which must be transported by the blood and excreted through the lungs. Since carbon dioxide is the chief respiratory stimulant the work of the lungs will be proportional to the metabolism. Inasmuch as the increase in the metabolism of the body means a greater formation of heat within the body there must also be a rise in the amount of heat dissipated from the surface. In order to accomplish this the skin must become warmer with an increment in radiation and there must also be a greater vaporization which, under ordinary conditions, takes care of about one quarter of the heat loss. In normal persons the total metabolism for long periods is closely paralleled by the appetite and food consumption, and in long observations weight loss or weight gain is parallel to the discrepancy between total metabolism and total intake. It is worth while considering these physiological phenomena in more detail, particularly in their bearing on the treatment of various diseases.

Let us first consider what happens in severe anemia. The oxidative demands of the cells are not diminished—indeed we often find an augmented basal metabolism in severe pernicious anemia. Ordinarily in health the blood which comes to the cells contains so much oxygen that only about one-third is removed in its passage through the capillaries, but in pernicious anemia the total oxygen capacity of the blood may be only one-ninth of the normal. It is obvious that there must be an increased flow of blood even when the patient is absolutely quiet. An increased demand from a rise in the total metabolism falls directly on a circulatory apparatus which is continually taxed. Similar conditions prevail in normal men at high altitudes. Everyone who has climbed high mountains has realized that in rarefied air a man may be fairly comfortable under basal conditions and very miserable if he raises his total metabolism.

The relationship of the velocity of the blood flow to the total metabolism has been well described by Blumgart[4,5,6] and his associates and Grollman[7] has fully reviewed the subject of cardiac output. Blumgart has published many curves showing the close parallelism between the basal metabolic rate and the velocity of the pulmonary flow in patients with myxedema and thyrotoxicosis. He says: "The question whether a given velocity of blood flow is adequate, therefore, cannot be decided in any absolute terms but only in relation to the metabolic rate of the particular patient." He believes that the increased

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[4]Blumgart, H. L.: Velocity of Blood Flow in Health and Disease. *Medicine*, 1931. Vol. 10, p. 1.

[5]Blumgart, H. L., Levine, S. A., Berlin, D. D.: Congestive Failure and Angina Pectoris. *Arch. Int. Med.* 1931. Vol. 51, p. 866.

[6]Blumgart, H. L., Reisman, J. E. F., Davis, D., Berlin, D.D.: Therapeutic Effect of Total Ablation of Normal Thyroid on Congestive Heart Failure and Angina Pectoris. *Arch. Int. Med.* 1933. Vol. 52, p. 165.

[7]Grollman, A.: The Cardiac Output of Men in Health and Disease. C. C. Thomas, Springfield, Ill. and Baltimore, Md., 1932.

velocity of blood flow in thyrotoxicosis probably occurs to meet the demands of the elevated metabolic rate and not as a result of a toxic effect on the heart. Blumgart working with Weiss and others has made classical contributions in his studies of the reduced velocity of the blood flow in cardiac failure. The cardiac output, which is not quite the same as the velocity of the blood flow, seems to be fairly closely parallel to the total metabolism. Apparently it does not rise very much with minor exercise or changes in posture but most of the other factors which increase metabolism make about the same percentage increment in the cardiac out-put. Of course there is an interference with the output in cardiac failure. The pulse rate in general follows the total metabolism and in any given individual a rise in pulse rate usually means a rise in the heat production. At the same time there is usually an increase in the pulse pressure, a greater difference between the systolic and diastolic readings. Attempts have been made to calculate the basal metabolism by using the pulse rate and the pulse pressure but there are a good many differences between individuals and the method can hardly be considered reliable. Nevertheless, it is of some clinical value, particularly when applied to a given individual under different conditions.

The whole problem of management of heart disease seems to depend upon the relationship of the demands of the total metabolism and the needed cardiac output with the capacity of the organism to meet these demands. We see our patients in cardiac failure at a time when they are in debt. Gradually with rest and proper treatment they come to a state when the circulation can just about meet the demands of the basal metabolism, plus the specific dynamic action of food, plus the increase in the basal due to the dyspnea. From this point on there is a nice question of therapy as to the best manner in which the total metabolism can be adjusted to the changing efficiency of the circulation. The physician must decide how much increased work should be allowed and how it should be dis-

tributed throughout the day. He must bear in mind all the small factors such as restlessness and excitement which raise the metabolism. He must do this on the basis of careful observation of the patient and he cannot depend on any adequate metabolic data. How many calories are wasted by the patient when he goes through the long process of coming to the hospital and passing through the routine of admission? How much is the metabolism raised by the visit of the doctor and his physical examination? Does an irascible patient use up more energy in hatred of the bed pan than he would expend in walking to the bathroom?

The carbon dioxide output is important in determining the work of the respiratory apparatus. McCann[8,9], in a classical piece of work on the diet in tuberculosis has made metabolic studies of service to therapy. He describes the increase in metabolism caused by the fever (about 13 per cent for each degree C.) and also the specific dynamic action which is quite marked in the case of protein and carbohydrate, low in the case of fat. He points out that for one unit of heat produced from carbohydrate there is a production of almost 30 per cent more carbon dioxide than would have been evolved if the same energy had been obtained from fat. The carbon dioxide acts as a respiratory stimulant and its effect is superimposed upon any increase due to the specific dynamic action of the food-stuff itself. He calls attention to the fact that the ingestion of 100 grams of cane sugar may increase the pulmonary ventilation 60 per cent. Inasmuch as the vital capacity is considerably reduced in pulmonary disease this increase is of much more significance than it would be in normal persons. McCann points out that the best diet in pulmonary tuberculosis from the theoretical standpoint is a moderate diet with fairly low protein and low carbohydrate and rather

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[8]McCann, Wm. S.: Effect of Ingestion of Food Stuffs. *Arch. Int. Med.* Dec. 1921. Vol. 28, p. 847.

[9]*American Review of Tuberculosis*, Vol. 5, No. 11, Jan. 1922.

high fat. If the patient tolerates fat well, this proves the most economical in regard to the work of the heart and the lungs.

We must not forget the physical aspects of the increased heat production within the body cells. This physical heat must be dissipated from the body or else there will be a steadily rising temperature. We are all familiar with the warmth of the skin and the sweating which follows muscular exercise or accompanies continually the high metabolism of the exophthalmic goiter patient. We should not forget that the temperature of the skin and the vaporization of moisture from the skin and lungs are fairly good indications of the total metabolism in conditions other than exophthalmic goiter. Of course, when the body temperature is rising the skin may be relatively cool at a time of high metabolism, or if the body temperature be falling rapidly the skin may be warm and moist at a period of normal metabolism. But in general the warmth of the skin, and particularly that of the forehead, is of value in indicating the level of the heat loss. A fairly accurate idea of the total metabolism can be obtained by measuring the insensible perspiration, that is, determining accurately the loss of body weight during a stated interval. This insensible perspiration depends largely on the loss of water from the skin and lungs; under standard conditions about one quarter of the calories are lost in this fashion. You must not place too much reliance on this method as the technique is not very easy and the vaporization of water is affected by clothing and by extremes of temperature.

There is one factor which must somehow parallel the total metabolism in normal persons and that is the appetite. A great many individuals are able to maintain the same body weight for years at a time without any conscious effort. The appetite must function with an accuracy of about 1/100 of 1 per cent when taken on a yearly basis. If there is a discrepancy between the total metabolism and the total appetite or the total food intake, the change in

body weight will be a fairly good indicator of the degree of this discrepancy. The one large source of error may be the development of a visible or invisible edema. Sudden changes in dietary are often accompanied by a gain or loss in body water. Grafe[10], Newburgh[11] and others have shown that obese patients placed on low dietaries may lose a great deal of body tissue and yet retain for a week or two enough body water to keep the weight fairly level. Eventually this is lost and the body weight falls. Under standard conditions, however, the measurement of body weight is of tremendous aid in adjusting diet.

We are now in a position to review briefly the methods of estimating the total metabolism. The best way, of course, is to put the patient in a respiration chamber and measure the oxygen or the carbon dioxide or the heat lost from the surface of the body. The technique is so difficult that comparatively few long period experiments have been made since the work of Atwater and Benedict. The method of estimating total calories by measuring the food consumed in the diet has been of value with large groups of the population. The method of combining a study of the insensible perspiration with short interval respiration experiments and extremely careful measurement of the diet has been highly developed by Newburgh. The clinician, however, is forced to estimate the metabolism in any individual case by making a series of measurements and guesses. He can determine directly the patient's basal metabolism as a starting point, or he can estimate it from the tables of standards, realizing that there is a good chance of an error of 10 to 15 per cent. He can then estimate the factor for the disease in question according to its apparent severity. He can then add 5 to 10 per cent for the specific dynamic action of food and 10 per cent for activity if the patient is very quiet in bed. If a patient is

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[10]Grafe, Erich: Metabolic Diseases and Their Treatment, Lea & Febiger, Philadelphia, 1933.

[11]Newburgh, L. H. and Johnston, Margaret W.: The Exchange of Energy Between Man and the Environment, C. C. Thomas, Baltimore, Md., 1930.

up and about for much of the day, perhaps the best thing is to compare his activity with that of certain trades or occupations as given in the standard text books. All the while the clinician must bear in mind the individual case, his mental attitude, speed of response, restlessness, and muscular efficiency. If the physician has made an estimate of the total metabolism and has provided a diet that is in any way quantitative he can then obtain a fair idea of the correctness of his calculations by following the weight curve.

In patients who are overweight it is often necessary for the physician to reduce the food intake or else to adopt means which increase the total metabolism. The method usually employed is one combining a reduction in food intake with an increase in the muscular exercise. This is not always a simple matter as these patients may be suffering from relative cardiac insufficiency. Muscular exercise tends to bring the load in peaks which may throw undue strain on the heart. Drugs such as thyroid extract which increase the basal metabolism distribute the load over the twenty-four hours. The clinician must decide which is the better method for a given patient. Exercise, particularly in the fresh air, has a beneficial effect if the patient can stand it. Thyroid extract is not without its own special dangers. There is a new drug or poison which has been recently suggested as a therapeutic aid—dinitrophenol. Cutting, Mehrtens and Taintor[12] of San Francisco have published a preliminary report on this material which caused a good deal of poisoning in the munitions factories during the Great War. They have found that if it is given orally in appropriate doses there is a rise of 30 to 50 per cent or more in the basal metabolism and that a high level can be maintained for months with no deleterious symptoms such as the hyperirritability caused by equivalent doses of thyroid gland. A larger dose causes fever which may be fatal. It is obvious that such a powerful agent

[12]Cutting, W. C., Mehrtens, H. G., Taintor, M. L.: Actions and Uses of Dinitrophenol, *J. Am. Med. Assoc.*, 1933. Vol. 101, p. 193.

must be watched with great care. The authors emphasize the fact that it should be tried only under strictly controlled conditions and that there are limitations to and possible dangers from the use of the drug clinically. We cannot yet be sure that it is free from after effects. Even if this drug turns out to be better than thyroid extract in the treatment of obesity it is still uncertain as to whether it will prove better than properly regulated exercise.

The question of controlling the level of the metabolism in diseases of the thyroid gland is one of paramount importance and the relationship of cardiac output and total metabolism is particularly striking in these cases. In thyrotoxicosis the velocity of the blood flow and the cardiac output are increased out of proportion to the metabolism. Conversely in myxedema the percentile decrease in cardiac output is greater than the decrease in metabolism. If a patient with hypothyroidism has adjusted herself to the low metabolism and low cardiac output there is considerable danger if one increases the metabolism too rapidly. This is being more and more emphasized in the literature. There is, however, no such contraindication to a rapid decrease in the metabolism in patients with thyrotoxicosis. Treatment with Lugol's solution and subtotal thyroidectomy decrease the work of an over-strained heart.

I have referred several times to the studies of Blumgart, Levine and their associates in Boston, dealing with the velocity of the blood flow. It was not unexpected that one who was so well trained in this field should go a step further and make a direct therapeutic application of the relationships of the demands of a normal or increased metabolism and the response of an inefficient circulatory apparatus. Very recently Blumgart, Levine, Reisman and Davis and Berlin[5,6,13] have published a series of important articles dealing with the effect of total ablation of the normal

[13]Berlin, D. D.: Therapeutic Effect of Complete Thyroidectomy in Congestive Heart Failure and Angina Pectoris. II Operative Technique. *Amer. Jour. Surg.*, 1933, 21, 173.

thyroid on congestive heart failure and angina pectoris. This group working at the Beth Israel and Peter Bent Brigham Hospitals in Boston concentrated their attempts on a group of patients who had been incapacitated over long periods on account of heart failure or angina. They had tried every possible means to restore these patients to useful life in the community and had, of course, reduced the total metabolism by proper limitations of physical activity. There seemed to be only one thing that they could do and that was to reduce the basal metabolism by removing the normal thyroid gland. None of these patients was suffering from thyroid disease. The first group reported were subjected to a subtotal thyroidectomy and showed temporary improvement with lower basal metabolism but subsequently the basal metabolic rate rose toward the pre-operative level and clinical conditions became less favorable. The operation of complete thyroidectomy was then developed by Berlin[13]. The August 1933 report of Blumgart and his associates[6] gives the early therapeutic results following total ablation in ten patients with congestive heart failure or angina pectoris. One patient died from an attack of acute pulmonary edema on the twenty-second day after operation; two patients who had been incapacitated from angina pectoris were greatly relieved and were able to perform much more work without attacks; the group of patients with congestive heart failure and practically no cardiac reserve showed conspicuous improvement. All of the patients developed a distinct lowering of the basal metabolic rate and there was slight dryness of the skin, increased sensitivity to cold, slow growth of hair, and lower heart rate. Thyroid substance was given for short periods to two patients but in the others was not indicated. Blumgart and his associates had so reduced the load that the handicapped hearts were able to meet the ordinary requirements and were even able to build up a slight cardiac reserve. Everyone is watching with interest the subsequent history of these patients. Dr. Blumgart tells me that up to the present time they have operated on forty patients and that the work is continuing to show good re-

sults. Heroic measures of this sort must be approached with great caution and it is obvious that there must be a careful selection of the patients combined with great operative skill. If this method is applied indiscriminately there will be a high mortality.

In closing it is necessary to call attention to the work in the field of total metabolism that is still needed. We need some drug that will lower the basal metabolism so that we do not have to resort to thyroidectomy. The overweight members of the community would derive great benefit if we only had some harmless drug that diminished the appetite. We need more studies of muscular efficiency in disease and the actual expenditure of effort which accompanies nursing activities and ward procedures. Most of all we need a better application of our knowledge of the total metabolism to the needs of the individual patients.

PROCEEDINGS OF ACADEMY MEETINGS

NOVEMBER

STATED MEETINGS

Thursday Evening, November 2, at 8:30 o'clock

ORDER

I. EXECUTIVE SESSION
   a. Reading of the Minutes
   b. Election of Fellows and Members
   c. Election of two members Committee on Fellowship
   d. Report of Nominating Committee

II. PAPERS OF THE EVENING (ANNUAL GRADUATE FORTNIGHT)

THE WESLEY M. CARPENTER LECTURE

The influence of the diencephalon and hypophysis upon general autonomic functions, Wilder Penfield, Professor of Neurology and Neuro-surgery, McGill University.

Non-diabetic ketosis in children, Oscar M. Schloss, Professor of Pediatrics, Cornell Medical College.

Thursday Evening, November 16, at 8:30 o'clock

THE SECOND HARVEY LECTURE

"The Potential Energies of Oxidation-Reduction Systems and Their Biochemical Significance"

W. MANSFIELD CLARK

Professor of Pyhsiological Chemistry
Johns Hopkins School of Medicine

SECTION MEETINGS

JOINT MEETING
SECTION OF HISTORICAL AND CULTURAL MEDICINE
and the
ROCKEFELLER INSTITUTE

Wednesday Evening, November 1, at 8:30 o'clock

Papers of the Evening

a. Narcotics in ancient Greece and in ancient China, Edward H. Hume

b. The School of Salerno, Arturo Castiglioni, University of Padua, (by invitation)

Section of Surgery

Friday Evening, November 3, at 8:30 o'clock
Program arranged in conjunction with the
Sixth Annual Graduate Fortnight

I. **Papers of the Evening**

a. Hyperparathyroidism and its relationship to diseases of bone, **Henry L. Jaffe**

b. Metabolic disturbances in relation to the teeth, Charles F. Bodecker

Section of Dermatology and Syphilology

Wednesday, Evening, November 8, at 8:30 o'clock

I. **Presentation of Cases from Stuyvesant Square Hospital**

II. **Presentation of Miscellaneous Cases**

III. **Discussion of Selected Cases**

Section of Pediatrics

Tuesday Evening, November 28, at 8:30 o'clock

Papers of the Evening

a. The value to a pediatric clinic of an intramural psychiatric clinic, Edwards A. Park, Harriet Lane Home, Johns Hopkins Hospital, (by invitation)

b. The psychobiological approach to children's personality difficulties, Leo Kanner, Harriet Lane Home, Johns Hopkins Hospital, (by invitation)

c. Personality difficulties in the pre-school child and our manner of dealing with them in a nursery group, Ruth W. Washburn, The Clinic of Child Development, Yale University School of Medicine, (by invitation)

JOINT MEETING

Section of Neurology and Psychiatry

and the New York Neurological Society

Tuesday Evening, November 14, at 8:30 o'clock

Papers of the Evening

1. A report of treatment of institutionalized adult epileptic patients with a ketogenic diet, John Y. Notkin, (by invitation)
2. Discussion of frontal lobe function
   a. The role of the frontal lobe in intellectual function. A study based upon a case of partial bilaterial frontal lobectomy. Presentation of the patient, Richard M. Brickner
   b. Observations in two cases of unilateral lobectomy, James C. Fox, Jr., William J. German, New Haven (by invitation) Discussion, Professor Robert S. Woodworth, Department of Psychology, Columbia University, (by invitation) Paul F. Schilder

Section of Genito-Urinary Surgery

Wednesday Evening, November 15, at 8:30 o'clock

Papers of the Evening

a. The female urethra—a much overlooked field, A. I. Folsom, Dallas, Texas, (by invitation)
Discussion to be opened by, H. Dawson Furniss

b. The value of cystometry, Maurice Muschat, Philadelphia, (by invitation). Discussion to be opened by, Joseph Hyams

Section of Otolaryngology

Wednesday Evening, November 15, at 8:30 o'clock

I. Presentation of Case

The rationale for surgery in ozena, Alfred Wachsberger, (by invitation)

II. Papers of the Evening

a. A consideration of ozena, Harry L. Pollock, Chicago, (by invitation). Discussion, Thomas J. Harris, Lee M. Hurd

b. Clinical presentation of the improvement in the surgical repair of the facial nerve, Arthur B. Duel

JOINT MEETING

Section of Orthopedic Surgery
and the Orthopedic Club of Philadelphia

Friday Evening, November 17, at 8:30 o'clock

I. Presentation of Cases

a. Osteogenesis imperfecta treated by heterogenous bone grafts, Alan DeF. Smith

b. 1. Resistant Erb's palsy. Operation—reattachment of the shoulder capsule

2. Potential spondylolisthesis. Spine fusion, Samuel Kleinberg

c. Subcapital fracture of the neck of the femur. Cases showing end results, Armitage Whitman

II. Papers of the Evening

a. Treatment of intracapsular fractures of the neck of the femur, A. Bruce Gill, Philadelphia

b. Some injurious effects of menstruation upon inflammatory joint processes, James T. Rugh, Philadelphia

III. Discussion, De Forest Williard, Philadelphia, Armitage Whitman, John Brooke, Philadelphia, Charlton Wallace

Section of Ophthalmology

Monday Evening, November 20, at 7 o'clock

I. Instruction Hour, 7 to 8 o'clock

Special histo-pathology of the eye, Bernard Samuels, Mr. Edgar Burchell, M.Sc. (by invitation)

II. Demonstration Hour, 7:30 to 8:30 o'clock

a. Slit lamp studies, Milton L. Berliner, Isadore Goldstein, Wendell L. Hughes, Girolamo Bonaccolto

b. Localization of foreign bodies in the eyeball, 8 to 8:30 o'clock, George S. Dixon

c. Case examinations

d. Apparatus and instruments

1. Binocular aphthalmoscope
Exophthalmometer, Colonial Optical Co., (by invitation)

2. Hand magnet, Non-magnetic instruments, Meyrowitz & Co., (by invitation)

III. Section Meeting

a. Reading of the Minutes

b. Scientific case reports

1. Lid margin with cilia viable after twenty-four hours in eyeball, Ben Witt Key
2. Report of a case of orbital lymphoma in lymphatic leukemia, Martin Cohen
3. Removal tumor of orbit, with neurectomy, Thomas H. Johnson
4. Complete perforation of eyeball—visual recovery, Joseph S. Hory

c. Scientific paper, 25 minutes

Visual results in intra-ocular foreign body cases, Walter F. Duggan, (by invitation)

Section of Medicine

The regular November meeting of the Section was postponed until Friday, December 1 at which time a joint meeting with the Section of Surgery was held.

Section of Obstetrics and Gynecology

Program arranged by the

GYNECOLOGICAL STAFF OF THE MEMORIAL HOSPITAL

Thursday Evening, November 28, at 8:30 o'clock

Papers of the Evening

a. Study of carcinoma of the cervix occuring after supracervical hysterectomy, Norman Arneson (by invitation)

b. Incidents of the vaginal fistulae in cases of carcinoma of the cervix, Frank R. Smith

c. Malignant neoplasms of the vulva, John A. Kelly (by invitation)

New York Meeting

Society for Experimental Biology and Medicine

under the auspices of

The New York Academy of Medicine

Wednesday, November 15, at 8:15 o'clock

I. Endogenous glycine formation in myopathies and Graves' disease, E. Shorr, H. B. Richardson, H. G. Wolff

II. The "Q" deflection in normal and abnormal human electrocardiograms, C. Shookhoff, A. H. Douglas,
Introduced by, H. Gold

III. Antistreptolysin titre of the serum in acute glomerular nephritis, D. Seegal, J. D. Lyttle
Introduced by, A. R. Dochez

IV. Blood cytology of normal rabbits as an index of their reaction to experimental syphilis, A. F. Casey, P. D. Rosahn, L. Pearce

V. Strain differences in susceptibility to tarinduced skin tumors in mice, C. J. Lynch

VI. A serological difference between the Eastern and western equine encephalomyelitis virus, C. Ten Broeck, M. H. Merril

VII. Ovarian response of hypophysectomized rats to uninary follicle-stimulating principle, S. L. Leonard, P. E. Smith

VIII. Toxic effect of sodium monoiodoacetate on trypanosomes, C. V. Smythe, L. Reiner

NEW YORK ROENTGEN SOCIETY

In affiliation with

THE NEW YORK ACADEMY OF MEDICINE

Monday Evening, November 20, at 8:30 o'clock

I. 8:30 to 9:00 p.m.
Demonstartion and discussion of interesting cases

II. 9:00 p.m.—PAPER OF THE EVENING
Recent studies on the etiology of cancer, Francis Carter Wood, (by invitation)

JOINT MEETING

NEW YORK PATHOLOGICAL SOCIETY

SECTION OF SURGERY

Thursday Evening, November 23, at 8:30 o'clock

I. PRESENTATION OF CASES

II. SYMPOSIUM ON GASTRIC NEOPLASMS

a. The pathological aspect, A. Purdy Stout

b. Roentgenological aspect, Ross Golden

c. Operative indications and prognosis, Fordyce B. St. John

III. GENERAL DISCUSSION, N. C. Foot, William H. Stewart, Allen O. Whipple, Frederic W. Bancroft, Leopold Jaches

RECENT ACCESSIONS TO THE LIBRARY

Alquier, L. La cellulite.
Paris, Masson, 1933, 236 p.

Bristol, L. D. Industrial health service.
Phil., Lea., 1933, 170 p.

Büscher, H. Grün-und Gelbkreuz.
Hamburg, Himmelheber, 1932, 199 p.

Dall, W. Ground porcelain inlays.
London, Kimpton, 1933, 196 p.

Dautrebande, L. Les gaz toxiques.
Paris, Masson, 1933, 371 p.

Gershenfeld, L. Bacteriology and sanitary science. 2. ed.
Phil., Lea, 1933, 493 p.

Gleason, E. B. A manual of diseases of the nose, throat, and ear. 7. ed.
Phil., Saunders, 1933, 651 p.

Grafe, E. Metabolic diseases and their treatment.
Phil., Lea, 1933, 551 p.

Hassin, G. B. Histopathology of the peripheral and central nervous systems.
Balt., Wood, 1933, 491 p.

Holthusen, H. & Braun, R. Grundlagen und Praxis der Röntgenstrahlendosierung.
Leipzig, Thieme, 1933, 249 p.

Kanavel, A. B. Infections of the hand. 6. ed.
Phil., Lea, 1933, 552 p.

Kienböck, R. Röntgendiagnostik der Knochen-und Gelenkkrankheiten.
Berlin, Urban, 1933, Heft 1-2.

Laurens, H. The physiological effects of radiant energy.
N. Y., Chemical Catalog Co., 1933, 610 p.

Leuret, E. & Caussimon, J. Les réactions du tissu pulmonaire dans la tuberculose.
Paris, Masson, 1933, 84 p.

Martin, F. H. The joy of living; an autobiography.
Garden City, Doubleday, 1933, 2 v.

Mumey, N. William Beaumont (1785-1853); the centenary of the publication of his contributions to medicine.
Denver, privately printed, 1933, 71 p.

von Oettingen, W. F. The therapeutic agents of the quinoline group.
N. Y., Chemical Catalog Co., 1933, 610 p.

Sigerist, H. E. Amerika und die Medizin.
Leipzig, Thieme, 1933, 352 p.

Sigerist, H. E. The great doctors.
N. Y., Norton, [1933], 436 p.

Text-book (A) of medicine by American authors. Edited by Russell L. Cecil. 3. ed.
Phil., Saunders, 1933, 1664 p.

de Toledo Piza, J.; Meyer, J. R. & Salles Gomes, L. Typho exanthematico de São Paulo.
São Paulo, Sociedade Impressora Paulista, 1932, 156 p.

FELLOWS AND MEMBERS ELECTED NOVEMBER 2, 1933

Alexander E. W. Ada.....33 East 68 Street
Francis W. Baldwin.....1060 Fifth Avenue
Nathan Chandler Foot.....65 West 96 Street
Adolph Abraham Lilien.....1127 Park Avenue
Henry D. Niles.....114 East 54 Street
William Kent Pudney .....11 Seymour Street, Montclair, N. J.
Louis F. Sanman.....35 West Ninth Street
Nathan Savitsky .....1814 Grand Concourse
John Arthur Taylor .....2 East 54 Street
Cornelius Horace Traeger.....133 East 58 Street
Max Trubek .....121 East 60 Street
Charles Diller Ryan .....525 East 68 Street
Martin H. Dawson.....5002 Arlington Avenue
Louise Pearce .....14 Sutton Place, South
William Antopol .....650 Crown Street, Brooklyn
William P. Thompson.....620 West 168 Street
Franklin Mac Cue Hanger.....Presbyterian Hospital
James P. Warbasse.....384 Washington Avenue, Brooklyn
Anthony C. Cipollaro.....200 West 59 Street
Leon Ginsburg .....1235 Park Avenue
Arthur William Grace.....339 East 58 Street
Hayes E. Martin.....36 East 72 Street
Israel Rappaport .....121 West 88 Street

DEATHS OF FELLOWS OF THE ACADEMY

THOMAS HAMILTON BURCH, M.D., 200 West 58 Street, New York City; graduated in medicine from New York University in 1880; elected a Fellow of the Academy April 7, 1887; died, November 27, 1933. Dr. Burch had for many years specialized in otolaryngology.

L. PIERCE CLARK, M.D., 2 East 65 Street, New York City; graduated in medicine from New York University in 1893; elected a Fellow of the Academy November 5, 1896; died, December 3, 1933. Dr. Clark was a Fellow of the American Medical Association, a member of the American Psychiatric Society, the American Psychoanalytic Society, the American Neurological Society, a member of the County and State Medical Societies, the New York Neurological Society, the New York Psychiatric Society, and Consulting Neurologist to Craig Colony for Epileptics, Sonyea, New York, Letchworth Village for Mental Defectives and New York City Childrens' Hospital.

RICHARD FROTHINGHAM, M.D., 133 East 58 Street, New York City; graduated in medicine from Harvard Medical School, Boston, Massachusetts, in 1892; elected a Fellow of the Academy. March 5, 1896; died, December 5, 1933. Dr. Frothingham was a Fellow of the American Medical Association and a member of the American Laryngological Association. He was Consulting Physician in Oto-Laryngology at Vanderbilt Clinic in New York City.

ALFRED FABIAN HESS, B.A., M.D., 16 West 86 Street, New York City; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1901; elected a Fellow of the Academy February 1, 1906; died, December 5, 1933. Dr. Hess was a Fellow of the American Medical Association, a member of the American Association of Pathologists and Bacteriologists, the American Pediatric Society, the American Physiological Society and the American Society for Clinical Investigation. He was Consulting Physician to the Willard Parker Hospital in New York City and President of the Harvey Society for the current year.

WILLIAM LOUIS ROST, M.D., 171 Echo Place, New York; graduated in medicine from Long Island College Hospital, Brooklyn, 1909; elected a Fellow of the Academy January 3, 1918; died December 4, 1933. Dr. Rost was a Fellow of the American Medical Association, a member of the County and State Medical Societies, the Bronx Pediatric Society, Adjunct Pediatrician to Mount Sinai Hospital and Chief Pediatrician to Morrisania Hospital, New York.

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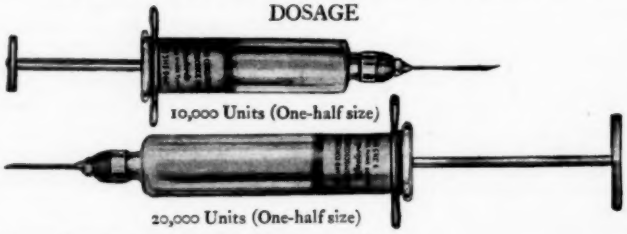

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